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(64) Entertainment machines

(57) A coin-operated entertainment machine selects and displays a combination of symbols for example by rotation of symbol-bearing reels behind a window (12). Multiple opportunities are given for selecting symbol combinations during play of a game, and a score is allocated to each attained combination. The scores are totalised and a win indication is given if the total score at the end of a game has reached a predetermined level. The total score may also be checked against scores obtained in previous games whereby the highest score can be displayed. The machine may be a fruit machine and features such as nudge, hold, gamble and jackpot may be incorporated.

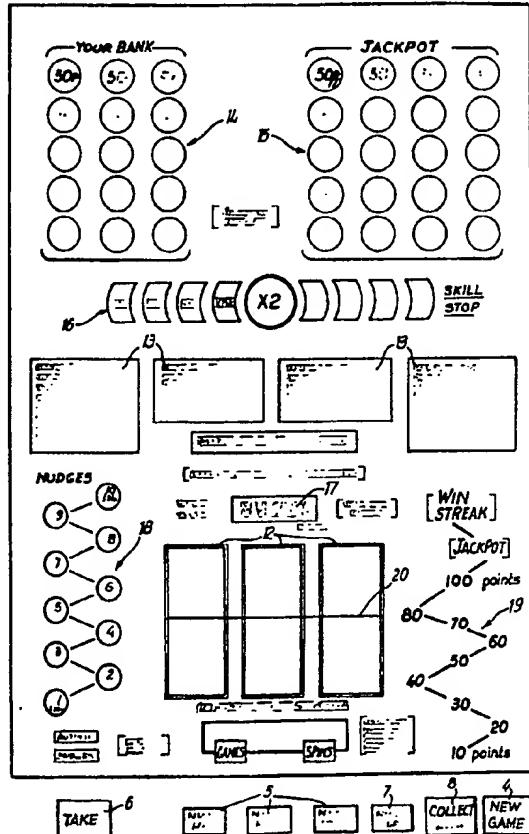


FIG. 2

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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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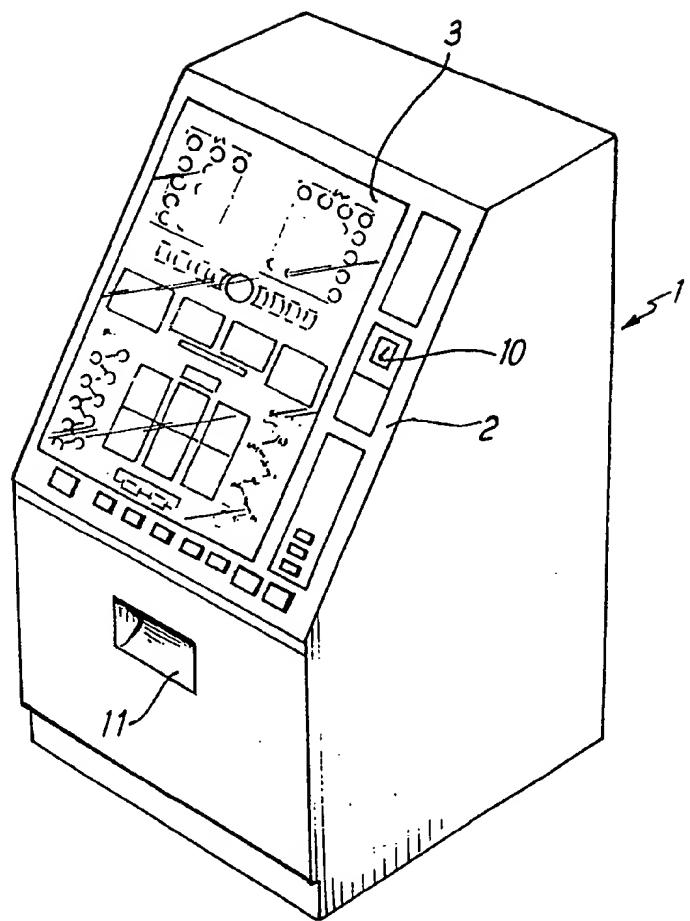


FIG. 1

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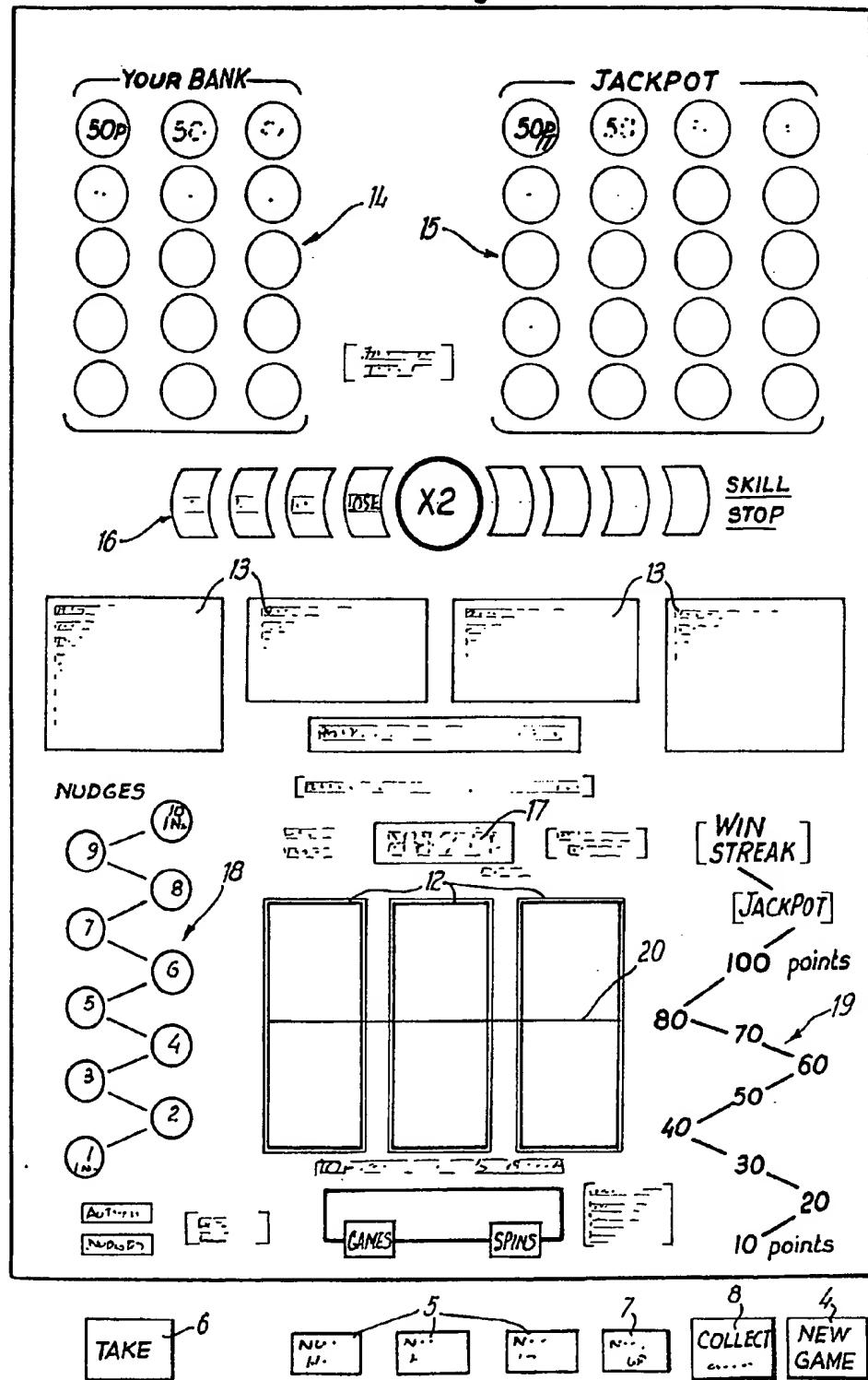
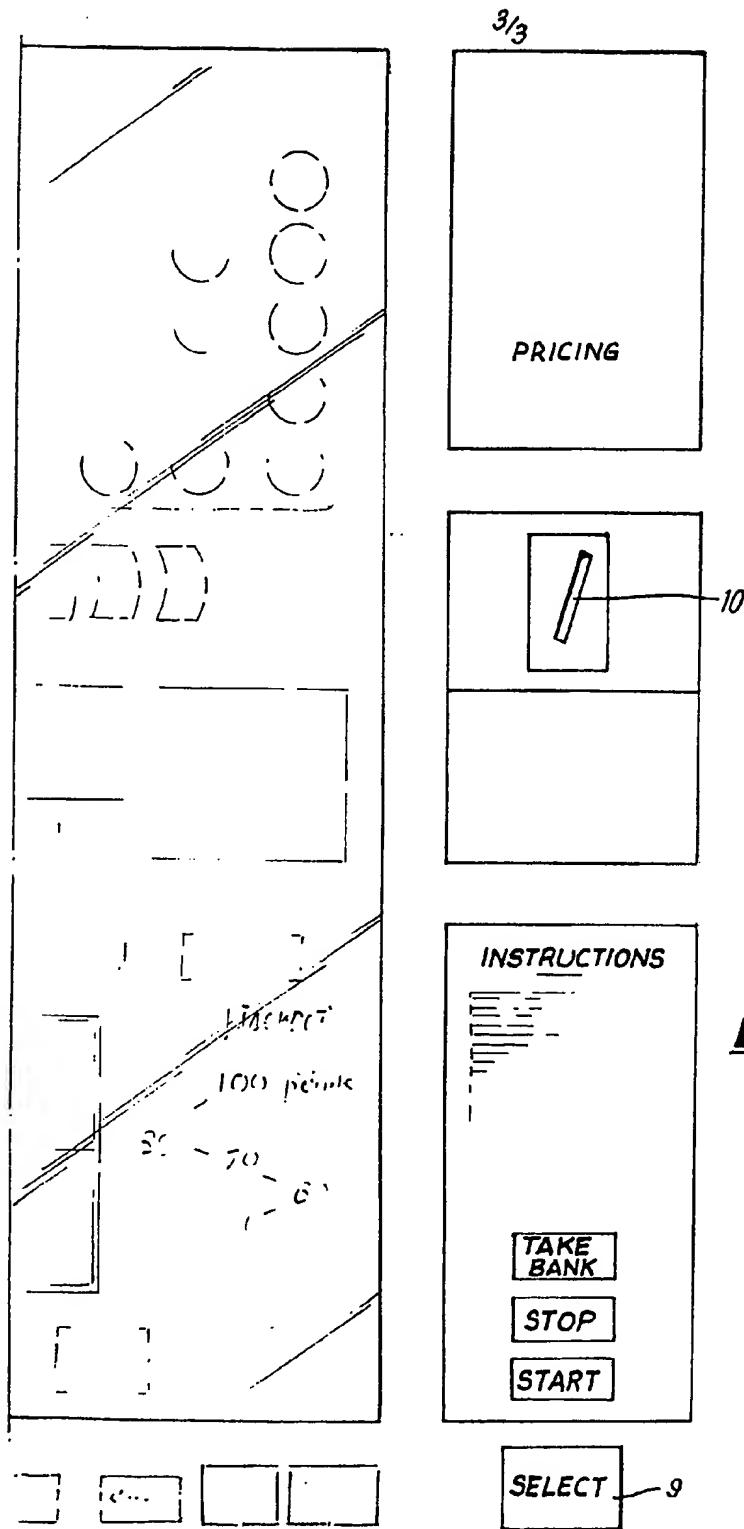


FIG. 2

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SPECIFICATION

Entertainment machines

5 This invention relates to a coin- (or token-) operated entertainment machine of the kind which is operable to play games involving a procedure in which a combination of symbols is selected and displayed. The invention is
 10 more particularly, although not exclusively, concerned with such a machine which is a fruit machine and with which the displayed symbols (typically representations of fruit) are selected at random, for example by rotation of
 15 reels or by change of a video display simulating the rotation of reels.

Present day electronic fruit machines afford considerable playing entertainment as well as giving an opportunity of winning prizes. Players enjoy using feature controls, such as 'hold', 'gamble' and 'nudge' buttons especially if there is some scope for the exercise of skill. The goal of an appreciable prize is important, but so is the entertainment factor
 20 as is apparent from the fact that prize awards of coins (or tokens) are often used by players to purchase new games.

With known machines some games result in no awards and no opportunities to use feature controls. Thus, there is the problem that an unfortunate player may have to spend much money to achieve prolonged entertainment. One way of overcoming this problem would be to increase the likelihood of winning but, since it is already common to return a high proportion of inserted coins (or tokens) as prizes (e.g. 80%), to be feasible this would require decreasing the average prize value and therefore reducing the interest derived from
 35 pursuing the goal of an appreciable prize. Another way of overcoming the problem would be to ensure that feature controls are available to the same extent in all games, but this would introduce an unacceptable level of
 40 predictability and also would necessitate a decrease in average prize value in so far as the increased availability of feature controls gives an increased likelihood of winning.

An object of the present invention is to provide an entertainment machine with which it is feasible to ensure prolonged entertainment value whilst maintaining the inducement of an appreciable goal.

According to the invention therefore there is provided a coin- (or token-) operated entertainment machine which is operable to play games involving a procedure in which a combination of symbols is selected and displayed, characterised in that in each game there is a plurality of opportunities to effect said selection and display procedure, each said procedure results in the production of a score determined by the selected combination, and a win indication is given at the end of the game
 65 in the event that said scores considered cu-

matively are of a predetermined nature.

With this arrangement, it will be understood that, whatever the final outcome of the game, the player is assured of a prolonged period of
 70 entertainment since he is provided with multiple opportunities for selecting and displaying symbol combinations. Moreover, the increase in game duration can be compensated in an acceptable manner by reduced likelihood of
 75 winning in so far as the attainment and accumulation of the scores can provide in itself a high level of player motivation.

Most preferably each game involves a predetermined plurality of selection and display
 80 opportunities, say, five. Preferably also the individual scores are accumulated to give a total numerical value and the win indication is given in the event that a predetermined value is reached or exceeded. There may be only one
 85 type of win indication, or there may be different categories of win indication corresponding for example to the attainment of different totalised score values. The or each win indication may be accompanied by the availability of
 90 a payout of coins and/or tokens. There may be provision for retaining and displaying a record of highest attained totalised scores to encourage competition between players.

Preferably, and especially where the machine
 95 is a fruit machine, the said procedures can be influenced or modified by features such as, a 'hold' feature whereby one or more symbols can be held against change during a selection procedure, and/or a 'nudge' feature whereby
 100 one or more symbols can be changed at the end of a selection procedure by stepwise indexing through a predetermined sequence of symbols. The or each such feature may be made available on a random or predetermined
 105 basis for each respective procedure. Alternatively a number of feature operations, determined on a predetermined or random basis, may be made available at the start of a game to be used as desired by the player in any of
 110 the selection procedure.

A 'gamble' feature may be provided whereby the player is given the opportunity of increasing the value of a score or an award, for example by pressing a button as 'double'
 115 and 'lose' indicators are alternately illuminated, the aim being for the player to synchronise, by the exercise of skill, pressing of the button with illumination of the double indicator.

120 At the end of a game there may be the possibility, on a random or predetermined basis, that one or more features (e.g. nudge features) and/or the totalised score and/or an available payout may be carried forward to the
 125 next game. The arrangement may be such that the likelihood of this is never greater than 50%.

The machine of the invention is preferably a fruit machine of the kind described above.

130 The invention will now be described further

by way of example only and with reference to the accompanying drawings in which:

Figure 1 is a diagrammatic view of one form of an entertainment machine according to the 5 invention; and

Figures 2 + 3 are more detailed views of the front of the machine.

The entertainment machine shown in the drawings is a fruit machine and comprises a 10 floor-standing box-shaped housing 1 having a front wall 2 which includes a screen-printed glass sheet 3 and below this a series of operating buttons including a start button 4, hold-/nudge buttons 5 and various other control 15 buttons 6, 7, 8, 9. There is also a coin slot 10 and a payout opening 11.

Within the housing there are three axially aligned reels having say 20 symbols (such as pictures of fruit) at regularly spaced positions 20 around their peripheries. The reels are axially rotatable and are drivably connected to respective stepper motors. The reels are arranged behind a window 12 defined by a printed region of the glass panel 3. Each reel 25 can be arrested by the respective stepper motor in any of 20 stepping positions in which one symbol is in precise registration with a horizontal win line 20 in the centre of the window 12 and two further symbols are visible above and below the win line. 30

The stepper motors are connected to a microprocessor-based control unit. This unit is also connected to a coin mechanism, a payout mechanism, the buttons 5-9, various lamps 35 behind printed display regions of the panel 3 and lamps in the buttons 5-9.

The panel bears printed matter additional to the window 12 including the following: information 13 e.g. as to scores which can

40 be achieved;
a bank display 14;
a jackpot display 15;
a gamble display 16;
a window bounding a digital (alphanumeric) 45 display 17;
a nudge ladder 18; and
a jackpot ladder 19.

In use when the player inserts coins into the 50 coin mechanism through the slot 10 sufficient to generate credit for one or more games the machine is actuated such that a game can now be played. Each game consists of five opportunities to spin the reels so as to select a combination of symbols displayed on the 55 win line 20. In conventional manner, in each such spin procedure the reels rotate and come to rest after different respective periods of time. The game commences after the appropriate new game button 4 has been pressed 60 and the five spin procedures may be implemented automatically in sequence, or if desired it may be necessary to press the button 4 to initiate each spin procedure.

At the start of each game a number of 65 "nudge" steps is made available as indicated

on the nudge ladder 18. There may be an opportunity for the player to try to increase the number of nudges by pressing a button to arrest progression up and down the ladder as indicated by successive illumination of the ladder sections. The player can use the nudges during the game at the end of any spin procedure to try to improve the selected symbol combination by indexing one or more reels

70 75 through one or more steps using the nudge buttons 5. It will be seen that the player has to exercise his skill and judgement to decide in which spin procedure or procedures to use the nudges. There may be an autonudge facility as described in Patents 2092797 and 2144568. At random at the start of some spin procedures a hold facility may be made available whereby one or more reels can be held against rotation during the ensuing spin 80 85 procedure by operation of the hold buttons 5.

At the end of each spin procedure the displayed symbol combination is assessed by the control unit (from a knowledge of the starting positions of the reels and a knowledge of the 90 number of stepping impulses fed to the stepper motor). A score is then allocated depending on the nature of the combination in accordance with the information at the display region 13. The scores are totalised from spin 95 procedure to spin procedure and the current total during a game is shown on the digital display 17. At the end of the game the final total is assessed to see if it has reached a predetermined level (e.g. 1000 points). If it 100 does, a payout is made available to the player.

The final total score is also checked against the previous highest score attained during an operating period (e.g. during a day or week 105 etc.) and if the previous highest score has been exceeded the new score is stored in the machine and the player is given an opportunity of entering his initials on the digital display 17 using one or more of the buttons 5-9. The 110 highest score and the identifying initials are displayed on the digital display 17 when games are not being played.

The gamble display 16 is actuated on a pre-determined or random basis at the end of 115 some or all spin procedures. Lose sections and double sections are illuminated alternately. By pressing an appropriate button the player can endeavour to arrest the gamble display when a double section is illuminated whereupon the attained score in that spin procedure 120 or at the end of the game is doubled.

Whenever the requisite final score (i.e. 1000 points) is attained which is sufficient for the payout to be made available, the amount of 125 the payout (e.g. £1.50) is indicated by illumination of appropriate sections of the bank display. There may be the opportunity of doubling (or losing) this using the gamble display 16.

130 The jackpot display 15 is related to the lad-

der display 19. At random, or in accordance with the display of special auxiliary symbols on the win line 20, sections of the ladder 19 can be successively illuminated and there is an opportunity to obtain an award e.g. at the end of the game, as indicated on the sections of the ladder. These awards are mostly bonus points to be added to the totalised score but there is also the possibility of a jackpot award. The jackpot award corresponds to the value of the number of sections of the jackpot display 15 which are illuminated at the end of the game. During play of the game the jackpot is "filled up" on a predetermined or random basis. There may also be a random jackpot double feature.

At the start of a game, when the start button 4 is pressed, the jackpot display, the score and the nudges may all reset. Alternatively they may retain their values from the previous game. The likelihood of the latter may be 50% and it will be appreciated that this gives an opportunity of attaining higher scores.

Although the jackpot display 15 is shown as having circular sections like the bank display 14, the jackpot display may "fill up" with scores (e.g. 50 points for each circular section) rather than filling up with monetary values, the total jackpot value being added to the main score when the jackpot is won.

With the arrangement described above, the player is assured of a prolonged period of entertainment since each game always involves five spin procedures and five opportunities to use features such as nudges etc. There is a decreased likelihood of achieving a payout since there are no small payouts only the large value payout which is made available each time a score of 1000 points is reached. However, the player can derive much entertainment and motivation from observation of his increasing totalised score.

It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiment which are described by way of example only.

CLAIMS

50 1. A coin- (or token-) operated entertainment machine which is operable to play games involving a procedure in which a combination of symbols is selected and displayed, characterised in that in each game there is a plurality of opportunities to effect said selection and display procedure, each said procedure results in the production of a score determined by the selected combination, and a win indication is given at the end of the game in the event that said scores considered cumulatively are of a predetermined nature.

2. A machine according to claim 1, wherein each game involves a predetermined plurality of selection and display opportunities.

65 3. A machine according to claim 1 or 2,

wherein the individual scores are accumulated to give a total numerical value and the win indication is given in the event that a predetermined value is reached or exceeded.

70 4. A machine according to claim 3, wherein there are different categories of win indication corresponding to the attainment of different totalised score values.

5. A machine according to any one of claims 1 to 4, wherein the or each win indication is accompanied by the availability of a payout of coins and/or tokens.

6. A machine according to any one of claims 1 to 5, including a hold feature whereby one or more symbols can be held against change during a selection procedure.

7. A machine according to any one of claims 1 to 6, including a nudge feature whereby one or more symbols can be changed at the end of a selection procedure by stepwise indexing through a predetermined sequence of symbols.

8. A machine according to any one of claims 1 to 7, including a gamble feature whereby an opportunity is given of increasing the value of a score or award.

9. A machine according to any one of claims 1 to 8, wherein there is the possibility at the end of a game of carrying forward one or more features and/or the totalised score and/or an available payout to the next game.

10. A machine according to any one of claims 1 to 9, including a jackpot feature having a display which can fill up with scores or monetary awards during play of a game, whereby the player can be credited with the score value or monetary value by winning the jackpot.

11. A machine according to any one of claims 1 to 10, which is a fruit machine.

12. A machine according to claim 1, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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(54) Coin-operated gaming machine

(57) A coin-operated gaming machine which offers the prospect of a win, including a plurality of rotatable members (2, 3, 4), which are provided with symbols which determine a win or a loss and are associated with display windows (5), and a microcomputer (25), fitted with a random generator, for controlling the entire course of the game. A rotatable disc (15) is provided, which is marked with different winning panels (16), is provided with an arrow (19) which is oppositely rotatable about the disc (15), the disc (15) and the arrow (19) having the same number of positions, and upon the occurrence of a predetermined combination of symbols in the display windows (5), the disc (15) and the arrow (19) rotate, and are arrestable virtually simultaneously by the operation of a stop button (24), and then the win, marked on the disc (15) by the arrow (19) is awarded.

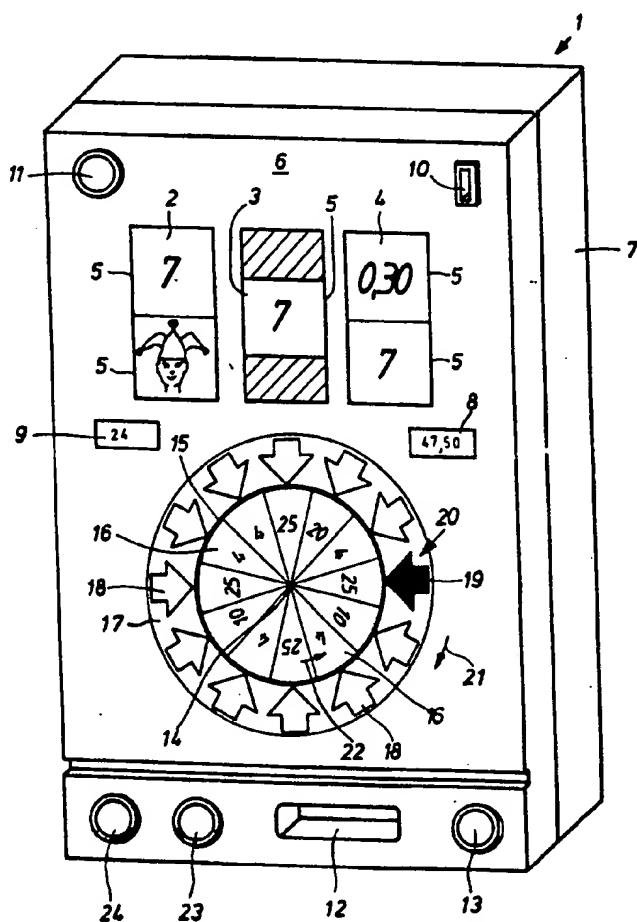


Fig. 1

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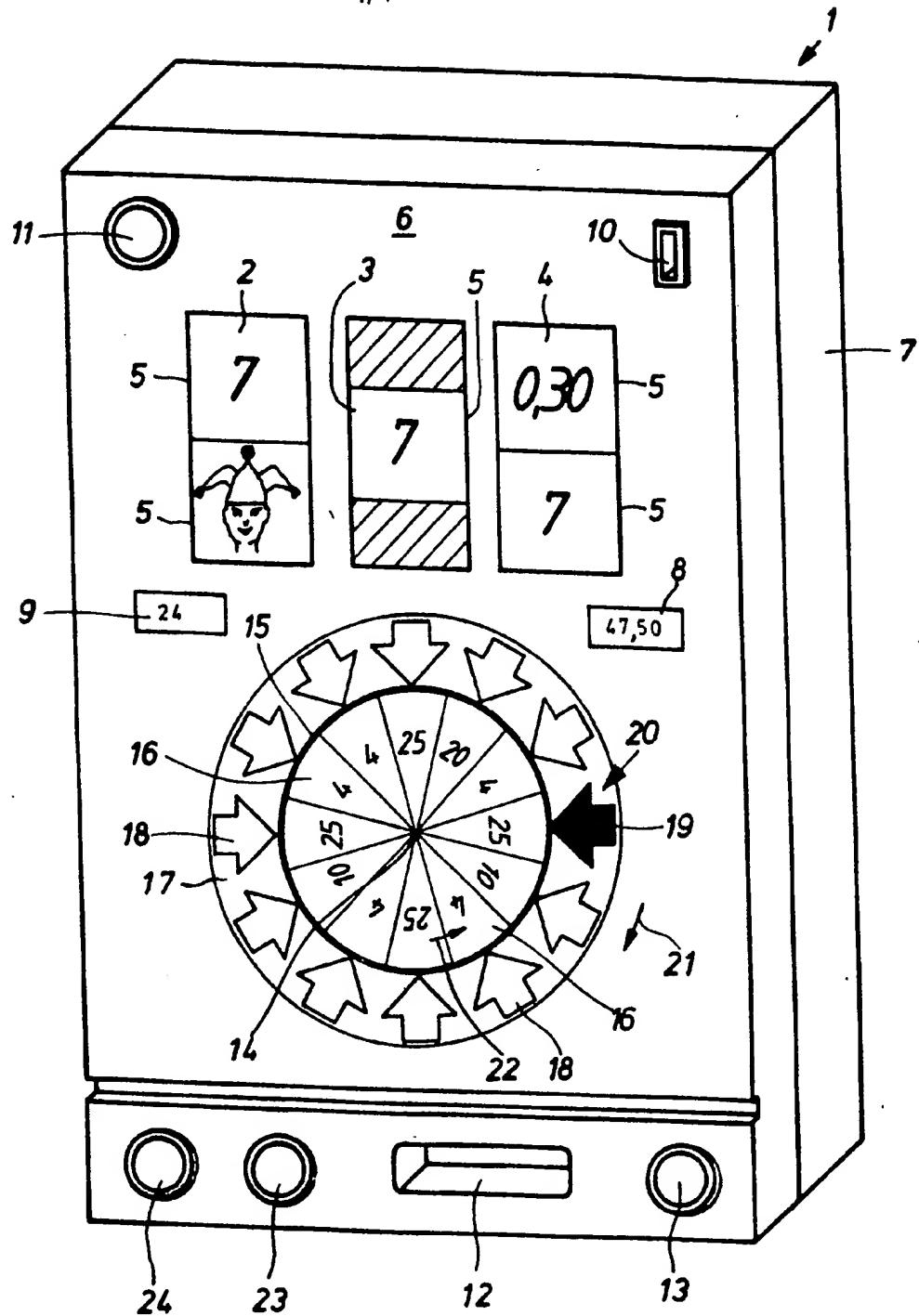


Fig. 1

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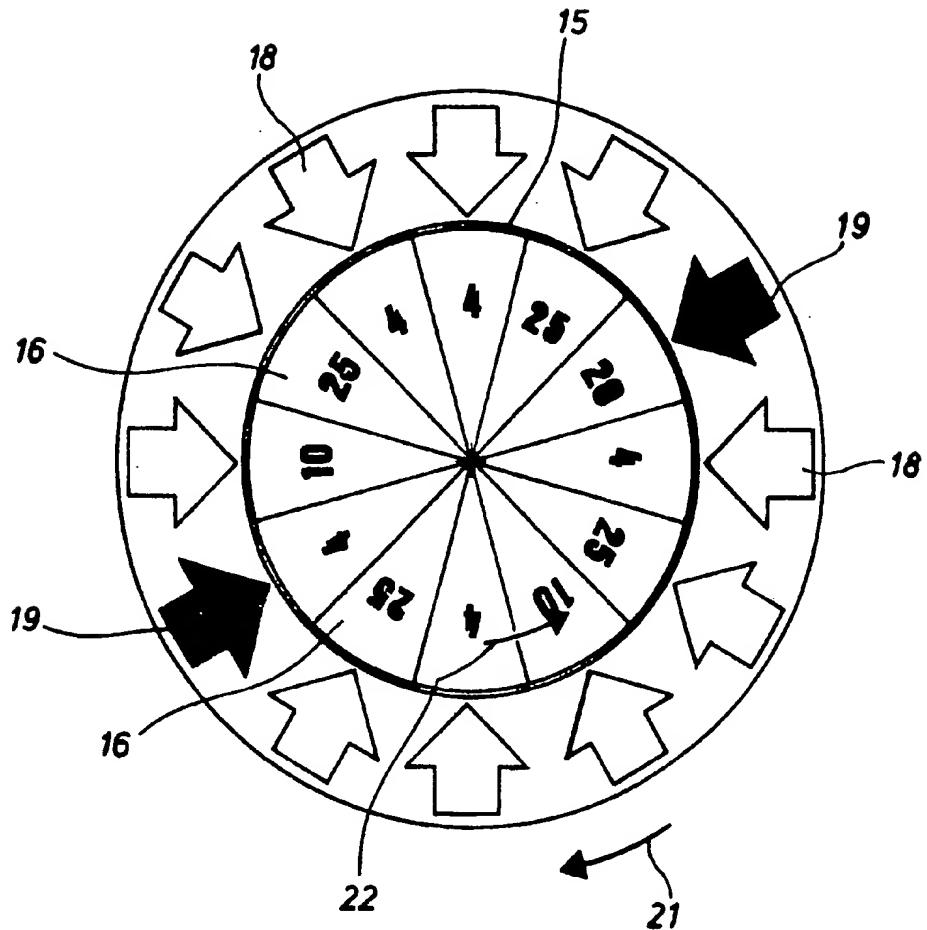


Fig. 2

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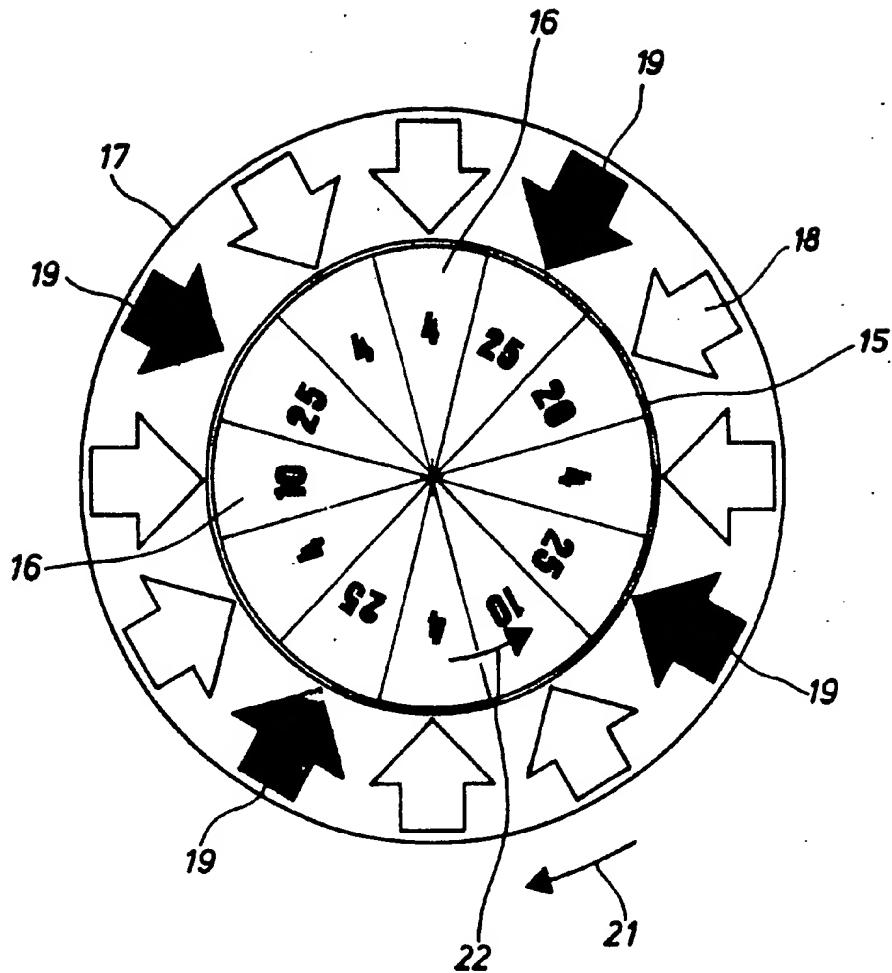


Fig. 3

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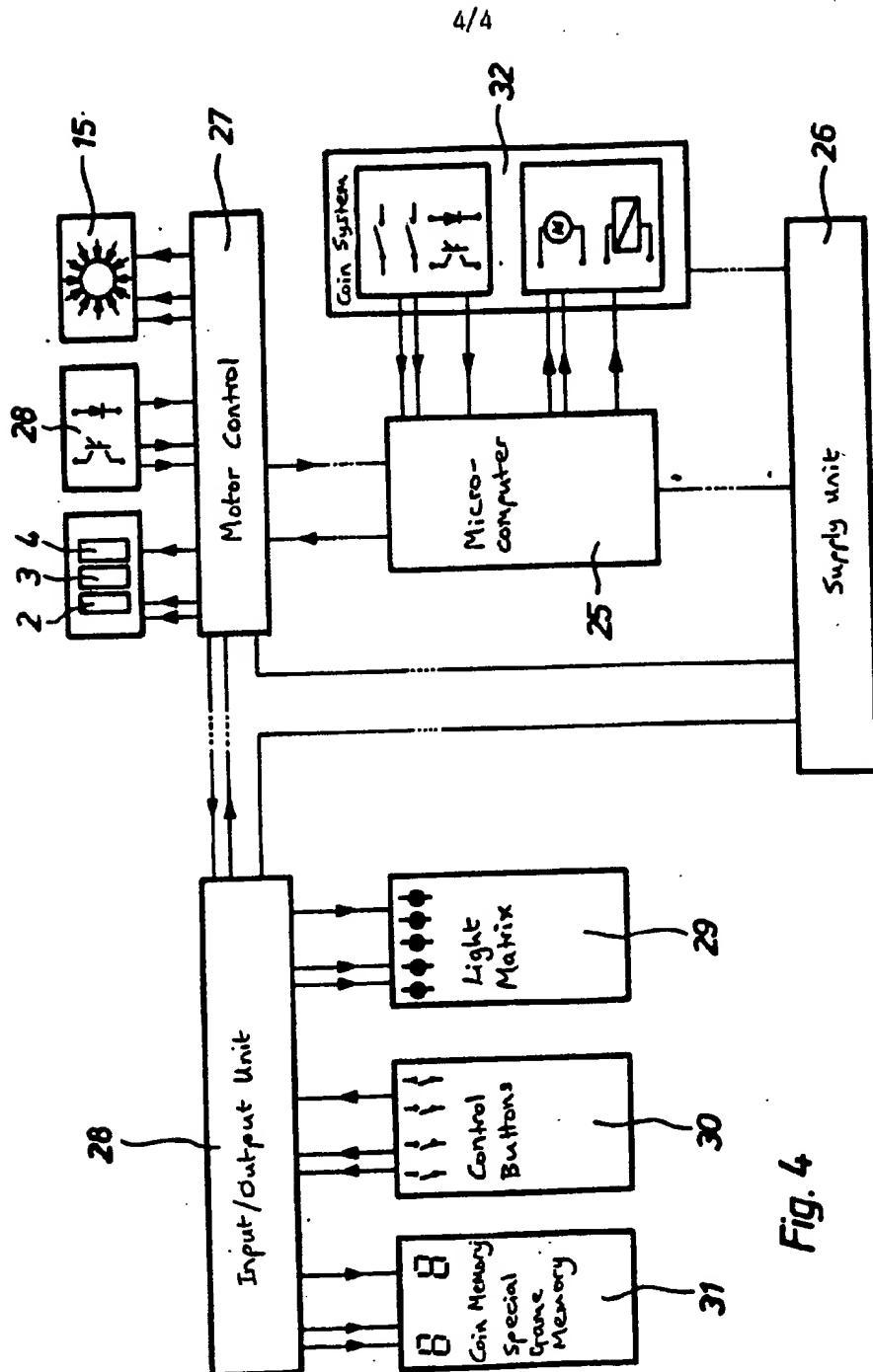


Fig. 4

COIN OPERATED GAMING MACHINE

5 The present invention relates to a coin-operated
gaming machine which offers the prospect of a win, including
a plurality of rotatable members which are provided with
symbols which determine a win or a loss and are associated
with display windows, and a microcomputer, fitted with a
10 random generator, for controlling the entire course of
a game.

15 A wide variety of such coin-operated gaming machines
are known. They mainly have three rotatable members which
may be in the form of rollers or in the form of discs.
15 The rotatable members have winning symbols on their surface
which can be perused through display windows from outside.
The rotatable members are generally stopped in succession
and, after all of the members have stopped, the combination
20 of symbols appearing in the display windows determines a
win or a loss. This is apparent from a winning diagram
provided on the front panel of the gaming machine.
Specific combinations of symbols give rise to a plurality
25 of so-called special or extra games. To increase the chances
of winning, these special games are games where higher
pay-outs are expected in the event of a win.

30 Various measures have already been taken to induce
a player to use such gaming machines, to entertain him
also during the course of the game and to provide him with
inducements to continue playing. Many of these gaming
machines are provided with control means for the player to
use, e.g. buttons, levers and knobs. These operating means
generally affect the movement of the individual rotatable
35 members. In consequence, the player is placed in a position
where he can start one or a plurality of the rotatable

members by operating such an operating means, e.g. a starting button, whereby the player is given the opportunity of actually influencing the events of the game. Stop buttons are also provided to enable the player to

5 hold a rotatable member thereby giving the player the impression that he can influence the events of the game and, hence, the combination of symbols which result during the game.

10 Further inducements to play are provided by panels having win-indicating means which are accordingly illuminated upon the achievement of a predetermined win. To achieve a greater win, more especially with the special games, it is necessary to play numerous games. In order to make

15 the game more varied, means for introducing risks in the game have been developed which permit the player to increase the already attained win at the risk of losing. In addition, gaming machines are known which permit the attainable win to be increased without the player suffering any losses.

20

With modern gaming machines which are on the market today, the entire course of the game - including determining the win and paying-out the win - is electronically controlled by means of a microcomputer which contains a program

25 corresponding to the particular course of the game. A so-called random generator is associated with the microcomputer in order to exclude any mathematical interrelationship in determining wins of subsequent games, so that each result of a game is dependent on chance.

30 At the very outset of the rotational movement of the individual rotatable members, the random generator actually determines the symbol which forms a part of the regulatable combination of symbols and stops the rotary component when this randomly determined symbol is in the result

35 position. The control buttons are also linked to the microcomputer and, by operating the control buttons,

the player is able to influence the course of the game as he wants, so that the rotary components can be restarted or prematurely arrested in known manner in order to give the player the customary entertainment value.

5

With a gaming machine of the above-described type, the invention seeks to make the course of the game and the possibilities of winning more varied and more exciting with greater inducements to play in order to increase the 10 entertainment value for the player.

15

According to the invention, there is provided a coin-operated gaming machine which offers the prospect of a win, comprising a plurality of rotatable symbol carrying members which are provided with symbols which determine a win or a loss and are associated with display windows, and a microcomputer, fitted with a random generator, for controlling the entire course of the game, wherein a rotatable disc which is marked with different winning 20 panels is provided with an arrow which is oppositely rotatable around the disc, the disc and the arrow having the same number of positions, and wherein, upon the occurrence of a predetermined combination of symbols in the display windows, the disc and the arrow rotate 25 and are stoppable virtually simultaneously by the operation of a stop button and then the win, indicated on the disc by the arrow, is awarded.

30

Due to this arrangement of the gaming machine, the player can clearly see, when the disc is in its state of starting position - as is mainly the case - what additional wins he can achieve with the occurrence of a predetermined combination of symbols. If this combination of symbols now occurs the disc is set in rotation and, at the same 35 time, the arrow begins to rotate in the opposite direction. In this case, the player can no longer see what win is in

what position. The player may then use the stop button to hold the arrow in any position he wants. The disc also stops when the arrow stops. The arrow now points to the attained winning panel of the disc, and the win marked in this winning panel is now given. Consequently, the excitement of the player is constantly increased by the subsequent events which may occur within a game during the interplay between the disc and arrow, with the result that the inducement to play is also increased.

10

In one embodiment of the invention, the speed of rotation of the circular disc is greater than the speed of rotation of the arrow point to the disc. The relatively slow movement of the arrow permits the arrow to be stopped at the desired arrow panel by means of skill, while the relatively rapid movement of the disc permits a virtually simultaneous holding with the disc.

20

So that the player can achieve extra games with a chance of winning in excess of normal play, in addition to the legally prescribed maximum amount of money winnings, a further development of the gaming machine according to the invention provides that the winning panels of the disc, which are disposed adjacent one another in a sector-like manner, are selectively marked with wins in respect of special games or money. Consequently, the player has the chance of achieving special games or a money win by arresting the rotating arrow accordingly.

25

So that the arrow rotates in a simple and wear-free manner from the point of view of design, according to an advantageous further development of the subject-matter of the invention, the disc is surrounded by illuminatable arrow panels which are associated with the individual winning panels of the disc, whereby, in order to simulate the rotating arrow- proceeding from an arrow panel which forms

5 a starting panel - the subsequent arrow panels are extinguishable in succession. In such a case, in order to increase the entertainment value, the starting panel for the rotational movement of the arrow is advantageously selectable from the arrow panels, as desired, by means of a button.

10 An additional, attractive arrangement of the gaming machine according to the invention is such that, in dependence on the occurrence of different combinations of symbols in the display windows, a variable number of arrows are illuminated in the arrow panels, such arrows simultaneously rotating in a direction opposite that of the rotating disc due to a step-wise sequence of extinguishing 15 the following arrow panels and, after they and the disc have stopped, the arrows mark a corresponding number of winning panels on the disc, the wins indicated by the winning panels being allowable as the total winnings. Consequently, the more arrows the player obtains, the higher 20 is his chance of achieving maximum winnings. The variable number of arrows supplied causes the player to pursue the course of events in the game with interest, and consequently the player is offered considerable entertainment value. With a predetermined combination of symbols, two opposed 25 arrows are set in the arrow panels and, with another predetermined combination of symbols, four arrows which are disposed in a cross-like arrangement relative to one another are set in the arrow panels.

30 The invention will now be described further, by way of example, with reference to the accompanying drawings, in which: -

35 Fig. 1 is a perspective, front view of a gaming machine according to the invention;

Fig. 2 is an enlarged detailed view of the disc and its associated circle of arrows as illustrated in Fig. 1 but with two arrows set;

5

Fig. 3 is an enlarged, detailed view of the disc and its associated circle of arrows as illustrated in Fig. 1, but with four arrows set; and

10

Fig. 4 is a basic block diagram showing the circuit structure of the gaming machine of Fig. 1.

15

The gaming machine 1 has three roller-like rotatable symbol carrying members 2, 3 and 4 which are each provided with a number of symbols for denoting a win or a loss.

20

Only the particular portions of the rotatable members 2, 3 and 4 situated inside the display windows 5 in the front panel 6 of the housing 7 are visible. Two display windows 5, which are disposed one above the other, are associated with each of the two outer rotatable members 2 and 4, while

25

the central rotatable member 3 is merely provided with one display window 5. After the members 2, 3 and 4 have stopped, the combination of symbols determining a loss or a win appears in the display windows 5. A coin indicator 8 and a special game indicator 9 are provided in the form of electronic displays below the three rotatable members 2, 3 and 4, and they indicate the amount of money in credit and the current number of special games. A coin slot 10 and a coin return button 11 are disposed above the windows 5.

30

A pay-out tray 12 and a control button 13, which is used to influence - i.e. restart and stop - the individual rotatable members 2, 3 and 4, are provided in the lower region of the gaming machine 1.

35

In addition, a circular disc 15, which is rotatable about an axis 14, is disposed in the front panel 6 between the members 2, 3 and 4 and the pay-out tray 12. The visible

front surface of the disc 15 is divided into sector-like winning panels 16 which are disposed directly adjacent one another. The individual winning panels 16 are marked with the number of special games which can be achieved- four, ten, twenty or twenty-five, respectively. Naturally, the winning panels 16 may also be marked with money winnings up to the maximum legally permissible limit. A circle of arrows 17, formed from illuminatable arrow panels 18, surrounds the disc 15. Each arrow panel 18, which points to the disc 15, is centrally associated with a predetermined winning panel 16, i.e. the number of arrow panels 18 corresponds to the number of winning panels 16. To simulate an arrow 19 rotating around the disc 15, an arrow panel 18, which 10 serves as the start panel 20, is extinguished, and subsequently the following arrow panels 18 are extinguished in a stepwise manner in the direction of arrow 21; the disc 15 is simultaneously rotating in the direction of arrow 22. The start panel 20 of arrow 19 may be freely selected by 15 means of a button 23 situated next to the pay-out tray 12. By utilising a stop button 24 which is provided next to the button 23, it is possible to hold the rotating arrow 19 within the circle of arrows 17 in a desired arrow panel 18, with the result that the disc 15 stops rotating 20 at the same time.

If three identical DM symbols appear next to one another in the display windows 5 - one of these symbols being shown in the upper display window 5 of the left-hand member 4 in Fig. 1 - the DM amount associated with these 30 symbols is won and is indicated in the coin indicator 8. If, however, a combination of three identical special symbols of a first type appears in the display windows 5, special games may also be won in addition to a sum of money, and such games are indicated in the special game indicator 9. 35 Special games offer the player a greater expectation of winning, while predetermined symbols on the central member

actually produce a win of 3 DM automatically. If a predetermined combination of special symbols of a second type appear on the members 2, 3 and 4 - such as three figure 7's next to one another, for example - the arrow 19 in the starting panel 20 is set in the circle of arrows 17. The player may then shift the starting panel 20 of the arrow 19 within the circle of arrows 18 for a certain period of time. Subsequently, the disc 15 is set in rotation in the direction of arrow 22, and the arrow 19 is set in rotation in the direction of arrow 21, the speed of rotation of the disc 15 being greater than the speed of rotation of the arrow 19. By means of the stop button 24, the player may now hold the arrow 19, which rotates from arrow panel to arrow panel, through extinction, on any arrow panel 18 he may want, and consequently the disc 15 is stopped at the same time. The arrow 19 now points to a predetermined winning panel 16 of the disc 15, and the special games indicated there are now won.

Upon the appearance of four special symbols of the second type in the display windows 5, i.e. upon the appearance of four figure 7's in the display windows 5, two opposed arrows 19 are set in the circle of arrows 17, as illustrated in Fig. 2. The two arrows 19 rotate simultaneously in a direction opposite that of the rotating disc within the circle of arrows 17. After the arrows 19 and the disc 15 have stopped, the arrows 19 point to two winning panels 16 of the disc 15, and the special games indicated there are added together and consequently allowed as the total winnings.

In the illustration of the disc 15 and its associated circle of arrows 17, as shown in Fig. 3, an arrow arrangement comprising four arrows 19, which are disposed in a cross-like arrangement relative to one another, is set in the circle of arrows 17. The four arrows 19 are then given when, after

the rotatable member 2, 3 and 4 have stopped, five special symbols of the second type appear in the display windows 5, i.e. in the present case, the figure 7 can be seen five times in the display windows 5. After 5 the four arrows 19 in the circle of arrows 17 have finished rotating, and after the disc 15 has stopped, the four arrows 19 point to four associated winning panels 16 of the disc 15. The number of special games shown on these four winning panels 16 is added-up and indicated to the player 10 as total winnings. Consequently, with four sets of arrows 19 the player can achieve the maximum number of special games offered by the disc 15.

15 The gaming machine 1 is controlled entirely by means of a microcomputer 25. All of the inputs and outputs, such as pulses in respect of coins, rotatable member monitoring, disc monitoring and buttons, or information regarding the motor for the rotatable members the disc motor, the 20 lights, the indicators and the pay-out motor, are serially transmitted in order to minimise the number of signal lines. All of the lights are controlled from a multiplexed light matrix, and the displays are also multiplexed. In particular, the microcomputer 25 is responsible for randomly determining the stopping of the rotatable members 2, 3 and 4 and for 25 determining the result in the additional winning game (15, 19), and the microcomputer 25 indicates to the player how the course of his game should proceed by the use of light and sound effects.

30 The supply unit 26 is responsible for supplying the power to the entire gaming machine 1. The required voltages are derived from a mains transformer, rectified and made available to the various assemblies. The microcomputer 25 includes a writing and reading memory (RAM) as the working 35 memory, a permanent memory (ROM) as the program memory with an integrated random generator, and additional, necessary components such as, for example, buffers, cycle

generators, recorders and the like. In addition, the microcomputer 25 includes a sound generator together with its associated AF amplifier. The motor control 27 supplies the signals necessary for the stepping motors of the 5 rotatable members 2, 3 and 4 - such signals being controlled by the microcomputer 25 - and indicates to the microcomputer 25 the synchronisation signal from the members 2, 3 and 4, such signals being received by a unit 28 for detecting and amplifying signals. Furthermore, the motor control 27 is 10 actively connected to the stepping motor of the disc 15. An input and output unit 28 forms the point of intersection for a multiplexed light matrix 29 which actuates all of the lights of the gaming machine 1, even those of the arrow panels 18 of the circle of arrows 17. The control buttons 15 30 and all of the indicators 31 are actuated by the microcomputer 25, or respectively their signals are supplied to the microcomputer 25. Moreover, an assembly 32, which constitutes the complete coin system of the gaming machine 1, is connected to the microcomputer 25. The assembly 32 20 serves to adapt the coin pulses to the reprocessing electronics to detect the number of coins which have been inserted and still exist in the coin memory, and the assembly 32 also supplies the control pulses for the money paying out motors.

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The features of the invention, as disclosed in the above description, in the drawings and in the claims, both individually and in any combination, may be materially intrinsic for the realisation of the invention in its 30 various embodiments.

CLAIMS

1. A coin-operated gaming machine which offers the prospect of a win, comprising a plurality of rotatable symbol carrying members, which are provided with symbols which determine a win or a loss and are associated with display windows, and a microcomputer, fitted with a random generator, for controlling the entire course of the game, wherein a rotatable disc, which is marked with different winning panels, is provided with an arrow which is oppositely rotatable around the disc, the disc and the arrow having the same number of positions, and wherein, upon the occurrence of a predetermined combination of symbols in the display windows, the disc and the arrow rotate and are stoppable virtually simultaneously by the operation of a stop button and then the win, indicated on the disc by the arrow, is awarded.
2. A gaming machine as claimed in claim 1, wherein the speed of rotation of the circular disc is greater than the speed of rotation of the arrow pointing to the disc.
3. A gaming machine as claimed in claims 1 and 2, wherein the winning panels of the disc, which are disposed adjacent one another in a sector-like manner, are selectively marked with wins in respect of extra games or money.
4. A gaming machine as claimed in claims 1 to 3, wherein the disc is surrounded by illuminatable arrow panels which are associated with the individual winning panels of the disc, and wherein, in order to simulate a rotating arrow, proceeding from an arrow panel, which forms a start panel, the subsequent arrow panels are illuminatable and extinguishable in succession.

5. A gaming machine as claimed in claims 1 to 4, wherein the starting panel for the rotational movement of the arrow is selectable, as desired, from the arrow panels by means of a button.

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6. A gaming machine as claimed in claims 1 to 5, wherein, in dependence on the occurrence of different combinations of symbols in the display windows, a variable number of arrows are illuminated in the arrow panels, such arrows simultaneously rotating in a direction opposite that of the rotating disc due to a step-wise sequence of illuminating and extinguishing the subsequent arrow panels and, after they and the disc have stopped, the arrows mark a corresponding number of winning panels on the disc, the wins indicated by the winning panels being awarded as the total winnings.

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7. A gaming machine as claimed in claim 6, wherein, with a predetermined combination of symbols, two opposed arrows are set in the arrow panels.

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8. A gaming machine as claimed in claim 6, wherein, with a predetermined combination of symbols, four arrows which are disposed in a cross-like arrangement relative to one another are set in the arrow panels.

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9. A coin-operated gaming machine substantially as hereinbefore described with reference to the accompanying drawings.

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